Illinois Commerce Commission

Assessment of Interstate Power and Light Company's

Annual Reliability Report of

Electric Service Reliability

For Calendar Year 2002

Pursuant to 83 Ill. Adm. Code 411.140

November 2003

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1. Executive Summary

Pursuant to Section 16-125 of the Illinois Public Utilities Act and the Commission's electric reliability rules as found in 83 Illinois Administrative Code, Part 411 ("Part 411"), Interstate Power & Light Company ("IP&L" or "Interstate") filed its first annual electric reliability report for the 2002 calendar year. This document details Staff's assessment of IP&L's reliability report and Staff's evaluation of IP&L's reliability performance for calendar year 2002.

IP&L provided the information required by Part 411 in the supplemental filing of its 2002 reliability report. Before 2002, IP&L was exempt from filing an annual reliability report pursuant to Code Part 411.110 (b). IP&L's reliability report was well organized and complied with all the Part 411 reporting requirements.

IP&L's plan to improve or maintain reliability should be adequate with a couple exceptions. IP&L currently performs circuit inspections on a ten-year cycle and tree trimming on a four-year cycle. IP&L does not mention performing any mid-cycle inspections or tree trimming. More frequent circuit inspections and mid-cycle spot tree trimming would help improve or maintain IP&L's reliability.

During 2002, IP&L's customers experienced the lowest system average interruption frequency (SAIFI) compared to customers of other Illinois electric utilities. IP&L customers experienced a customer average interruption duration (CAIDI) and a customer interruption frequency (CAIFI) that fell in the middle of the nine reporting electric utilities. This means that, in general, interruptions to customers on IP&L's system happened less often than they did to customers served by other Illinois utilities. IP&L's low average interruption frequency index during 2002 is commendable. However, IP&L also reported a software problem that appears to put the accuracy of its CAIFI reliability index in doubt.

Lightning accounted for almost one-half of all of the interruptions in 2002, 127 out of a total of 260 or 49%. Even though Staff did not see any evidence of inadequate lightning protection on the two circuits inspected during the summer of 2003, Staff still recommends that IP&L review its lightning protection practices in light of the high percentage of lightning caused interruptions in 2002.

For 2002, IP&L's O&M (operations and maintenance) expenditures for its distribution system were 33% less than it reported for 2001 and was less than each of the four prior years O&M expenditures. IP&L reported that the planned O&M distribution budget for 2003 is 15% higher than 2002 but still lower than all but one of the five previous years IP&L stated that this fluctuation was due to the relatively small service are that they operate in Illinois. Staff will monitor IP&L's O&M expenditures in future years.

During the summer of 2003, Staff inspected two IP&L circuits that had an interruption frequency higher than IP&L's system average. Staff found that these two circuits appeared generally well maintained, but that inadequate tree trimming has allowed trees to contact energized equipment throughout the length of the circuits. Staff also found some deteriorated facilities that appeared to be in need of repair or replacement.

Staff recommends several steps IP&L should take to improve electric service reliability to its customers. While the above discussion covers the significant items in a general way, eight specific recommendations are included in this Staff report, summarized on page 13.

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2. Introduction

This document assesses IP&L's 2002 reliability report, and evaluates IP&L's reliability performance for calendar year 2002.

Beginning with the year 1999 and every three years thereafter, 83 Illinois Administrative Code Part 411.140 requires the Commission to assess the annual reliability report of each jurisdictional entity and evaluate the entity's reliability performance. Code Part 411.140 requires the Commission evaluation to:

A) Assess the reliability report of each entity.

B) Assess the jurisdictional entity's historical performance relative to established reliability targets.

C) Identify trends in the jurisdictional entity's reliability performance.

D) Evaluate the jurisdictional entity's plan to maintain or improve reliability.

E) Identify, assess, and make recommendations pertaining to any potential reliability problems and risks that the Commission has identified as a result of its evaluation.

F) Include a review of the jurisdictional entity's implementation of its plan for the previous reporting period.

Code Part 411.110 (b) allowed those entities that were found to be exempt from the record requirements of the Commission's electric service reliability policy (83 Ill. Adm. Code 410, Subpart C) to delay maintaining interruption records until January 1, 2002. One of these entities that were exempt until 2002 from filing an annual reliability report was Interstate Power and Light Co.

3. Description of IP&L's Customers and Service Territory

During 2002, IP&L provided electric service to approximately 11,135 customers in northwest corner of Illinois. The IP&L facilities are located in Jo Daviess, Carroll, and White Side Counties with the largest cities served being Galena, Mt. Carroll, and Savanna. IP&L divides its Illinois operating area into two zones, Dubuque and Clinton, and maintains its headquarters in Dubuque, Iowa.

4. Description of IP&L's Electric Distribution System

The majority of IP&L's facilities are located in rural/agricultural areas with 29 IP&L owned feeders supplying approximately 490 miles of distribution at 15kV and below.

Subsection 411.120(b)(3)(G) requires utilities to report on the age of distribution equipment. IP&L lists the average age of its substation equipment as 15.8 years, with a 40-year depreciable life; its poles and fixtures as 8.1 years, with a 40-year depreciable life; and its distribution transformers as 6.4 years, with a 30-year depreciable life.

5. Assessment of IP&L's 2002 Reliability Report

83 Illinois Administrative Code Part 411 requires each non-exempt jurisdictional entity to file an annual reliability report for the previous year with the Chief Clerk of the Commission, by June 1. IP&L's initial 2002 reliability report, filed May 30, 2003, did not

fully comply with the requirements of Section 411.120(b)(3). IP&L filed a revised report on July 11, 2003, provided the needed information to satisfy code requirements. In future reliability reports, Staff would like IP&L to expand its discussion on its plan for reliability improvements, especially with regard to annual expenditures planned for the ongoing capital and maintenance processes.

Staff is happy to see that IP&L designed its reliability report to be easily read and understood and easily referenced back to the Commission's rules. IP&L's reliability report provides tables of reliability indices, operating practices, specific reliability projects, listings of interruptions with causes, the ages & condition of its system, and a listing of its worst performing circuits for the year. IP&L organized its report that follows the order that requirements listed in Section 411.120.

6. IP&L's Historical Performance Relative to Established Reliability Targets

Subsection 411.140(b)(4)(A-C) sets forth reliability targets that a jurisdictional entity must strive to meet or exceed. Table 1 summarizes these reliability targets. The targets specify a maximum number and duration of controllable outages that any customer should expect to experience. IP&L was exempt from maintaining data for the three years before the 2002 filing and therefore did not provide information pertaining to historical performance.

Table 1

Part 411 Reliability Targets

Immediate primary source of service operation level	Maximum number of controllable interruptions in each of the last three consecutive years.	Maximum hours of total interruption duration due to controllable interruptions in each of the last three years.
At 69kV or above	3	9
Between 15kV & 69kV	4	12
At 15kV or below	6	18

A "controllable interruption" is defined in Part 411.20 as:

"…*An interruption caused by or exacerbated in scope and duration by the condition of facilities, equipment, or premises owned or operated by a jurisdictional entity, or by the action or inaction of persons under a jurisdictional entity's control and that could have been prevented through the use of generally accepted engineering, construction, or maintenance practices*".

Table 2 lists controllable interruptions by cause category as reported by IP&L for 2002. For 2002, IP&L categorizes 23 interruptions as controllable. Controllable interruptions accounted for only about 9% of all interruptions on IP&L's system, and approximately 9% of all outage durations. Staff believes this number is too low.

Table 2

IP&L's Controllable Interruptions by Cause

Cause	2002
Tree Growth	17
Equipment failure – overload	5
Planned	1
TOTAL	23

Generally, utilities report interruptions as "controllable" only if the utility's contribution to the interruption is flagrant. Interruptions with more subtle utility involvement, such as poorly placed poles that are hit by vehicles, or untrimmed trees that blow into the lines during storms, are not typically classified "controllable" by utilities. Staff believes that if, after each interruption, the electric utility seriously considered whether it could have taken reasonable steps to prevent the interruption from occurring, the number of interruptions classified as "controllable" would be much higher. Staff is encouraged that IP&L classified all tree growth and equipment overload interruptions as being controllable. Staff believes that some of IP&L's animal and weather related interruptions are also controllable and suggest that IP&L review their controllable classification criteria for next year's reliability report.

7. Analysis of IP&L's Reliability Performance in 2002

Reliability indices are useful tools in monitoring an electric utility's reliability performance. These indices, submitted by all reporting utilities, can be used to compare the reliability performance of various utilities, and provide an indication of whether a given utility's performance is improving or degrading over time. Since each reporting utility has its own procedures, including reporting and recording methods, direct reliability index comparisons between utilities are not exact, but can be helpful.

Part 411 requires each reporting Illinois utility to report the following indices:

- $\text{SAIFI} = \frac{\text{Total \# Customer Interruptions}}{\text{Total \# Customer Served}}$
- $\text{CAIFI} = \frac{\text{Total \# Customer Interruptions}}{\text{Total \# Customers Affected}}$
- $\text{CAIDI} = \frac{\text{Sum of all Interruption Durations}}{\text{Total \# Customer Interruptions}}$

Table 3 (a-c) shows the year 2002 indices submitted by all reporting utilities for their Illinois systems. Each table is sorted from best to worst performance.

Table 3

2002 Reliability Indices for all Reporting Utilities

a) SAIFI

UTILITY	SAIFI
Interstate Power	***.84***
ComEd	1.05
Illinois Power	1.15
South Beloit	1.3
AmerenCIPS	1.58
AmerenCILCO	1.68
AmerenUE	1.81
MidAmerican	1.97
Mt. Carmel	3.59

b) CAIFI

UTILITY	CAIFI
South Beloit	1.69
ComEd	1.84
Illinois Power	1.96
AmerenCILCO	2.05
Interstate Power	***2.13***
AmerenCIPS	2.16
MidAmerican	2.55
AmerenUE	2.56
Mt. Carmel	3.59

c) CAIDI

UTILITY	CAIDI
MidAmerican	66
Mt. Carmel	83
ComEd	96
South Beloit	98
Interstate Power	***104***
AmerenCIPS	113
AmerenUE	164
Illinois Power	166
AmerenCILCO	224

IP&L reported that they were aware of and in the process of correcting software problems that resulted in the CAIFI reliability index not always being accurate. IP&L indicated that their outage management software was not accurately identifying those customers impacted by an outage. The software, in part, incorrectly counted customers with multiple premises. IP&L indicated that they are intending to have a new outage management system in place by July 2004. If IP&L does not correct the software problems until July 2004, both the 2003 and 2004 reliability indices will be suspect. Staff requests that IP&L have the ability to provide the most accurate information possible in their annual reliability reports, with the ongoing software problems this request may not be met until the 2005 reliability report.

IP&L's relative position in the CAIDI and CAIFI tables indicate that in 2002 IP&L's customers received service with reliability comparable to the service provided to customers served by the other reporting electric utilities. IP&L reported the lowest SAIFI, 0.84,of any of the nine reporting electric utilities. A SAIFI value of 0.84 indicates that in 2002 IP&L customers experienced an average of 0.84 interruptions. Since IP&L has a relative small service area in Illinois Staff would expect these reliability indices to fluctuate appreciably year to year depending on the frequency and severity of storms. IP&L stated that no severe storms occurred in its Illinois service area during 2002.

"Worst performing circuits" are circuits that are among the 1% of circuits in each operating area that have the highest value for each reliability index. Section 411.120 requires utilities to report worst performing circuits (Subsection 411.120(b)(3)(I)) and state corrective actions taken or planned to improve these circuit performances (Subsection 411.120(b)(3)(J)). Table 4 shows six IP&L circuits that were determined to be worst performing for 2002.

Table 4

IP&L's Worst Performing Circuits for 2002

a) SAIFI and CAIFI

Circuit	Zone	SAIFI	CAIFI
8117	Clinton	3.55	3.82
8317	Dubuque	2.71	2.79
8315	Dubuque	2.26	2.46

b) CAIDI

Circuit	Zone	CAIDI
8314	Dubuque	433.9
8315	Dubuque	189.2
8166	Clinton	171.5

As part of its review of IP&L's 2002 reliability performance, Staff engineers requested information on four IP&L circuits. During the summer of 2003, Staff conducted field inspections on two circuits that were either worst performing during 2002, or had a high SAIFI for the year. One circuit from each of IP&L's two operating zones were inspected. These inspections allowed Staff to determine the condition of, and to see if there were any visible reasons for the worst performance of these circuits. For example, Staff looked for poor tree trimming practices, broken equipment, rotten poles, damaged equipment, etc. Descriptions of the circuits and Staff's inspections follow:

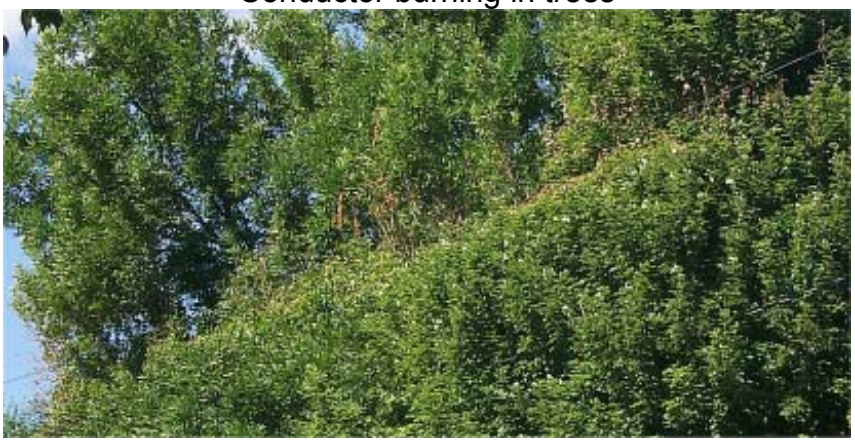
Circuit 8317 – West Galena (Dubuque Zone)

SAIFI=2.7; CAIFI=2.8; CAIDI=120

This 13kV circuit, a 2002 worst performing circuit due to SAIFI, serves approximately half of the city of Galena. Of the twenty-five outages on this circuit in 2002, thirteen were weather related, six due to wildlife, and five were unknown or caused by the public. IP&L reported none of the outages as tree-related. IP&L last trimmed this circuit in 1999, and next the next scheduled tree trimming is 2003. IP&L has no additional reliability improvements scheduled for this circuit at this time. Staff found several locations where trees were contacting the primary (Photos 1 & 2). The circuit appeared to have adequate quantities of tap-line fuses, animal protection, and lightning arrestor installations. Staff feels that mid-cycle spot tree trimming would improve the reliability of this circuit. Given that the next scheduled tree trimming is 2003 the number of trees close to or in the primary wires should be resolved at that time. Staff suggests IP&L consider performing an inspection of this circuit and correcting any found problems to ensure that it does not continue to be a worst performer. IP&L last inspected this circuit in 1994.

Photo 1

Conductor burning in trees



Hill & Franklin Streets in Galena

Photo 2

Conductor in contact with trees

On Red Gates Road west of Galena

Circuit 8135 – Savanna (Clinton Zone)

SAIFI=1.1; CAIFI=1.2; CAIDI=105

Initially IP&L reported that this 13kV circuit to be a 2002 worst performing circuit due to SAIFI but its reliability indices were later lowered when the outage management software data was corrected. This circuit supplies mainly agricultural and residential customers in and around the community of Savanna. Of the nineteen outages on this circuit in 2002, three were circuit wide due to substation equipment outages, six were weather related, six were distribution equipment problems, and three were due to tree or animal causes. IP&L last trimmed this circuit in 2000, and the next scheduled trimming is 2004. IP&L last inspected this circuit in 1998. IP&L has no additional reliability improvements scheduled for this circuit at this time. Staff noted fourteen

locations where trees were growing into or through the primary conductor. Almost all of the tree growth was new with the limbs just into the primary (photos 3 & 4). Staff encourages IP&L to do hot spot tree trimming of this circuit to minimize future tree related outages. Before IP&L trims this circuit in 2004 Staff would expect the tree problems and associated outages to be appreciable. Staff also noted a deteriorated crossarm on a rural line tap (photo 5). Staff is pleased with the overall condition of this circuit but feels that mid-cycle tree trimming should be a priority.

Photo 3

Primary burning in evergreen tree

Rear lot Iris & Eaton St. Savanna

Photo 4

Top of trees burnt by primary

South of Doty Rd. on Rt. 84

Photo 5

Damaged crossarm

East of Doty Cir on Doty Rd in Savanna

8. Trends in IP&L's Reliability Performance

Year 2002 is the first year IP&L has been required to file an annual reliability report in compliance with the reporting requirements of Part 411. Therefore, no reliability performance trends are available for IP&L.

Tables 5, 6, and 7 show graphically how IP&L's 2002 reliability indices compare to the other eight reporting utilities.

Table 5

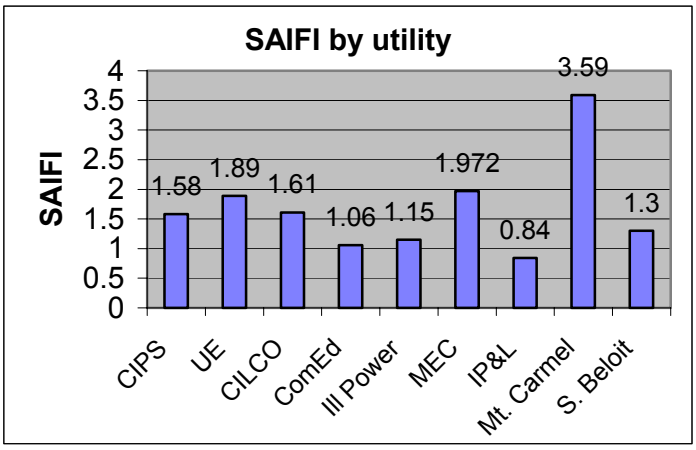


Table 6

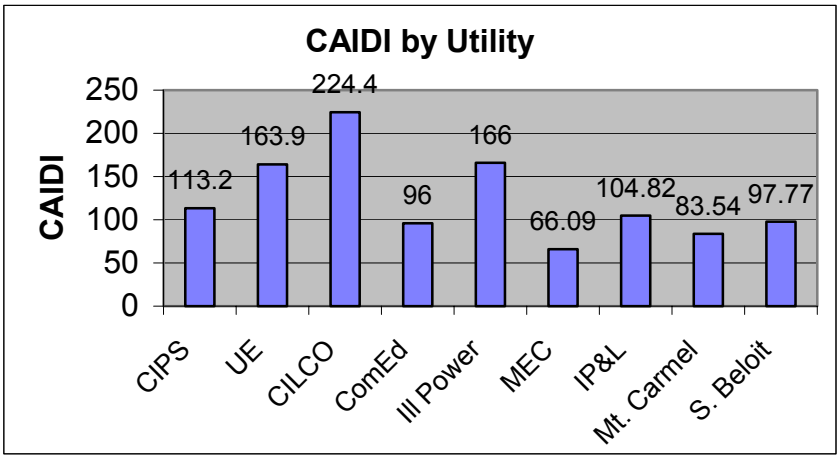
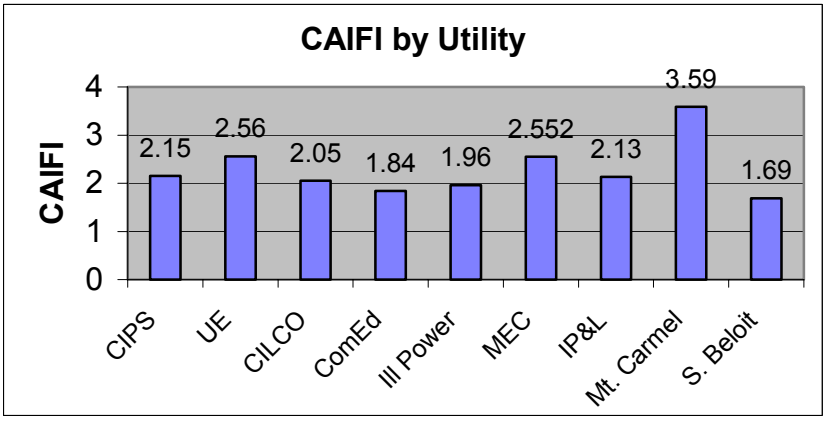


Table 7



In 2002, IP&L had the lowest SAIFI value of all the reporting utilities. IP&L's reported CAIFI and CAIDI values were in the middle (fifth) of the nine utilities' reported values. The low SAIFI indicates that average number of interruptions experienced by IP&L customers is lowest of the reporting utilities.

IP&L listed six formal reliability complaints in its 2002 Reliability Report. The subject of five of the complaints was multiple outages, and one related to the length of the outage.

IP&L's 2002 Reliability Report listed the number of customers that experienced various numbers of interruptions during the year. Table 8 shows the IP&L supplied customer interruption data. This table also shows the percentage of IP&L customers that had a specific number of interruptions, i.e., 60.7% of the customers had zero interruptions, and 2.8% had four interruptions in 2002. Absent from IP&L's report was any mention of its actions, if any, to reduce the number of future service interruptions experienced by the customers who experienced seven, eight, and nine interruptions in 2002.

Table 8

IP&L Customers Experiencing a Certain Number of Interruptions

# Customer Interruptions	# Customers	% Customers
0	6,758	60.7%
1	1,578	14.2
2	1,274	11.4
3	1,092	9.8
4	313	2.8
5	88	0.8
6	6	--
7	24	0.2
8	1	--
9	1	--
>9	0	0
Total	11,135	100.0%

Table 9 shows the comparison, by utility, of the percentage of customers experiencing various numbers of interruptions in 2002.

Table 9

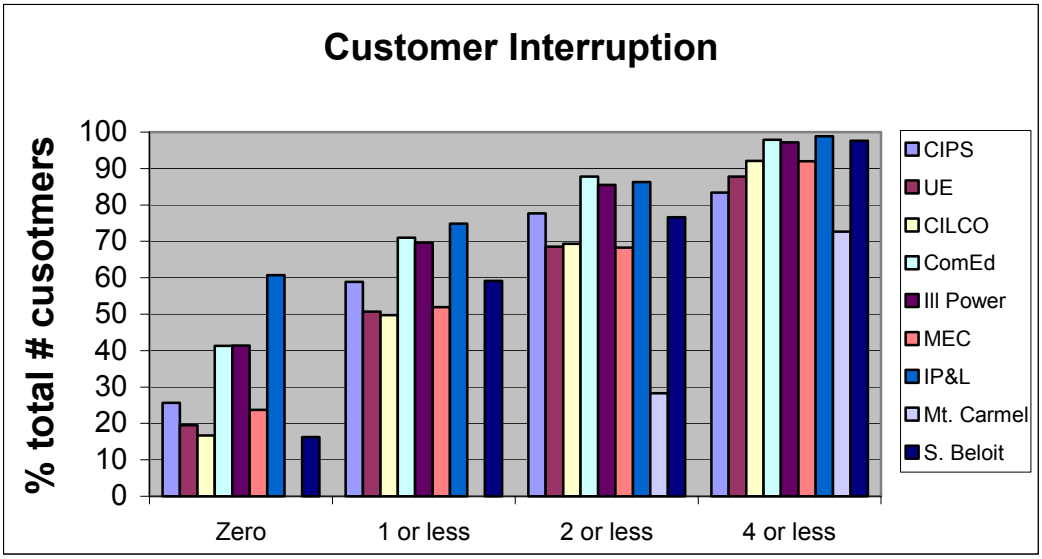


Table 9 shows that the percentage of IP&L customers that did not experience any outages (60%) in 2002 was appreciably higher than the other eight utilities. The utilities with the next highest percentage of customers not experiencing any outages were at

41%. In 2002, 98.9% of IP&L's customers experienced 4 or less outages, which was the highest of all nine reporting utilizes in 2002.

Staff encourages IP&L to be attentive to these statistics and to take action to minimize repetitive interruptions to the same customers. Staff believes that IP&L's current reliability practices of installing line tap fuses, animal guards and lightning arrestors are responsibly in part for the low percentage of customers experiencing multiple interruptions. Staff encourages IP&L to continue and expand its reliability practices.

Table 10 shows IP&L's total number of categorized interruptions and duration for each type of cause for 2002.

Table 10

IP&L's Interruption Statistics - 2002

CAUSE	# Of Interruptions	% Of Total Interruptions	Customer Minutes Out	% Customer Minutes Out
Weather-Lightning	127	48.8%	408,030	41.8%
Weather-High Wind	14	5.4	171,041	17.5
Underground Equip	27	10.4	158,802	16.3
Tree Broken Limb	7	2.7	99,492	10.2
Public	8	3.1	72,663	7.4
Animal	47	18.1	31,243	3.2
Tree growth	17	6.5	25,464	2.6
Unknown	7	2.7	6,485	0.7
Planned	1	0.4	2,192	0.2
Overhead Equip	5	1.9	895	0.1
Total	260	100.0%	976,307	100.0%

IP&L does not comply with Part 411.130 that requires each utility to "classify and report on the cause of each interruption using the cause categories and interruption code descriptions given in Table A of this Part." Starting with the 2003 reliability report, IP&L should classify all interruptions by the cause categories listed in Table A of Code Part 411.

Weather caused interruptions resulted in 54% of the total and 59% of the total minutes the customers were out of power in 2002. IP&L reported that animals were the second largest cause of interruptions with 18% of the total while trees accounted for 9% of the total interruptions.

9. IP&L's Plan to Maintain or Improve Reliability

In its 2002 Reliability Report, IP&L listed four system-wide operating practices it performs that have a direct bearing on reliability.

1. Underground distribution age – replacing unreliable cable
2. Overhead distribution age – line inspections and resulting corrective actions

3. Annual Substation equipment inspection and testing
4. Line clearance maintenance – tree trimming

Staff agrees that all of these operating practices should help to maintain or improve reliability. Staff would encourage IP&L to include a periodic line inspection (something less than the current 10 year policy) starting with next year's reliability report.

In its 2002 Reliability Report, IP&L states its plan to maintain or improve reliability contains the following specific projects:

Dubuque Zone:

1. Long range transmission study – to be completed September 2003.
2. Long range distribution capacity and reliability study – to be completed in 2004
3. Specific distribution circuit projects, two in 2002, and two in 2004.

Clinton Zone:

1. Specific distribution circuit projects, two in 2002, and two in 2004.
2. Transmission capacity addition in 2003
3. Substation capacity addition in 2003 and 2004.

Staff agrees that IP&L' activities relating to these specific reliability projects should contribute to better service reliability to its customers. The range of specific projects IP&L will be performing in the next three years pleases staff.

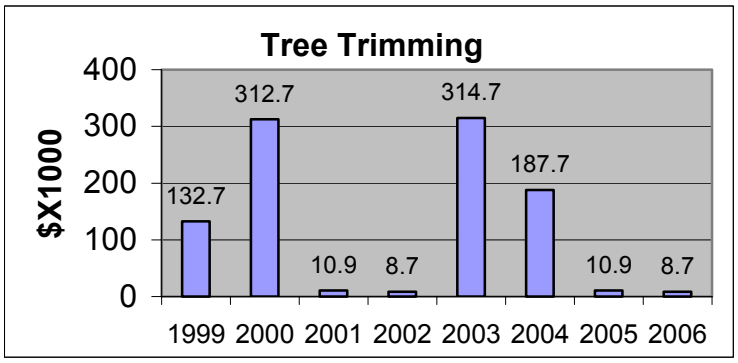
10. Potential Reliability Problems and Risks

IP&L reported 129 weather-lightning related interruptions in 2002. Lightning caused interruptions accounted for almost one-half of all the interruptions in 2002. Staff recommends that IP&L review its lightning protection practices in light of the high percentage of lightning caused interruptions in 2002.

During inspection of IP&L's circuit 8135, Savanna area, Staff discovered trees contacting the power lines in many locations, and noted that dozens more would be in contact during severe winds. IP&L attributed six of the nineteen interruptions on this circuit during 2002 to storms, three to trees and animals, and six to electrical equipment failures. Staff believes customers on this circuit will experience many more interruptions if trees adjacent to this circuit are not trimmed again before 2004, as planned by IP&L.

IP&L's budget for tree trimming is shown on Table 11. IP&L stated that before 2001, they were on a five-year tree trimming cycle and now they are on a four-year cycle. IP&L stated that due to the relatively small service area that they serve in Illinois fluctuations in the Illinois IP&L tree trimming budget is expected. Without additional funding for years 2005 and 2006 staff is concerned that IP&L will not be able to adequately minimize tree related outages.

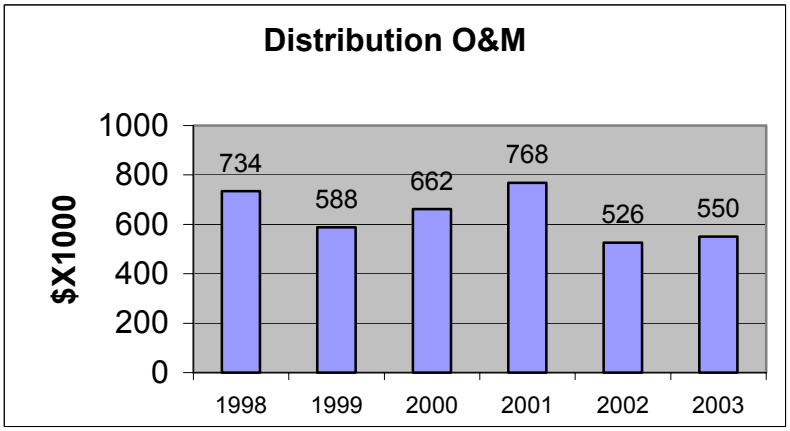
Table 11



The O&M funds IP&L budgeted for 2003 and those spent in 2002 are below the expenditures for years 1998 through 2001. Table 12 shows the distribution O&M expenditures for years 1998 through 2002, and the budgeted figure for 2003. IP&L stated that the O&M budget information for years 2004 and 2005 is not available.

Staff is concerned that the current IP&L level of funding of O&M will possibly result in a degradation of the distribution facilities and a reduction in reliability. IP&L's response to Staff's funding concern is that due to the relatively small service area that IP&L serves in Illinois fluctuations in the Illinois IP&L O&M budget is expected. Staff believes that IP&L should adequately fund distribution O&M to maintain the distribution system, which most likely is at a minimum equal to the historical O&M spending level.

Table 12



11. IP&L's Implementation of the Plan listed in its 2001 Reliability Report

Year 2002 is the first year IP&L has been required to file an annual reliability report in compliance with the reporting requirements of Part 411. Therefore, IP&L had no reliability plan for 2001.

12. Summary of Recommendations

- *IP&L should adequately fund distribution O&M.*

  For years 2002 and 2003 IP&L is under-funding their distribution O&M compared to the previous four years expenditures. IP&L should verify that needed distribution O&M funding is being provided so that the distribution system does not degrade.

- *IP&L should shorten its current 10-year distribution circuit inspection cycle to a more reasonable length, like four years.*

  Staff found the IP&L distribution lines that it inspected to be in good condition generally. However, Staff does not believe that inspecting distribution lines on a 10-year cycle is likely to maintain or improve the condition of IP&L's facilities. Further, equipment deterioration, like the crossarm shown in Photo 5, puts public safety at risk and should be discovered and corrected more often than every 10 years.

- *IP&L should trim trees to maintain adequate safe and reliable clearance and provide funds for that required trimming activity level.*

  Staff believes that trees may have contributed to some interruptions categorized by IP&L as weather-related and unknown. Staff's review of IP&L's facilities in the West Galena area, where tree trimming was last completed in 1999, found only a few tree problems, but Staff's review of the facilities in the Savanna area, where tree trimming was last completed in 2000, found many locations of new tree growth into the primary. The results of the inspection of the Savanna area indicates that four years might be too long between tree-trimming cycles for some areas. IP&L's budgeted funds for tree trimming in years 2005 and 2006 do not indicate an adequate tree trimming activity level will take place to reduce the exposure its lines have to tree contacts during those years.

  Staff believes that an adequate tree trimming program requires the removal of vegetation to ensure that vegetation does not grow back into contact with a utility's overhead electric distribution lines or a condition that threatens electric service reliability, employees, or the general public before the utility returns to trim again in a maximum of four years. For some heavily treed areas, it may be necessary for IP&L to shorten the tree trimming cycle length or perform mid-cycle inspections and spot trimming to achieve this result.

- *IP&L should revisit its planned actions to improve the reliability of the worst performing circuits.*

  For the six worst performing circuits listed in IP&L's 2002 report, only two circuits had actions planned or performed mentioned. IP&L should consider performing some action(s) on each worst performing circuit each year to reduce the likelihood of the circuit being a repeat worst performer. If IP&L decides not to take any actions on a particular circuit, it should include an explanation of that decision in its report

- *IP&L should include in its future reliability reports descriptions of actions it has taken and plans to take to help limit the number of service interruptions experienced by those customers who experience large numbers of interruptions during the reporting year.*

According to IP&L's report, 26 customers experienced seven or more service interruptions in the reporting year 2002. Staff believes that such customers deserve the attention of IP&L and serious efforts by the utility to prevent frequent interruptions of their service in future years.

- *IP&L should consider classifying more interruptions as controllable.*

  Staff is pleased that IP&L classified all tree growth and equipment overload interruption as controllable. Staff encourages IP&L to review their criteria used to determine which causes are controllable.

- *IP&L should expand the information regarding future reliability plans in each year's report.*

  Staff is pleased with the specific project descriptions provided by IP&L, but some additional information on IP&L's reliability plans is suggested. IP&L should provide the estimated annual cost for each ongoing process described in the reliability report. IP&L should consider instigating mid-cycle circuit inspections of at least the worst performing circuits.

- *IP&L should expedite replacement of its existing outage management system.*

  IP&L stated that the existing outage management software is not correctly recognizing the customers on individual circuits thereby potentially causing errors in the reporting of annual reliability indices. IP&L stated that the replacement system would be operational by July 2004. IP&L should commit the funding and manpower necessary to see that the outage management solution is in place no later that July 2004.